

A METHOD FOR SEX DETERMINATION OF THE COLORADO POTATO BEETLE PUPA, *LEPTINOTARSA DECEMLINEATA* (COLEOPTERA: CHRYSOMELIDAE)¹

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ABSTRACT: A method for the determination of the sex of the Colorado potato beetle *Leptinotarsa decemlineata*, at pupal stage is presented. This method is based on sexual differences of the external morphology of pupae. External morphology differences between sexes at adult stage are also depicted.

The sex of the adult Colorado potato beetle can be determined by examining morphological differences of the last abdominal sternite (Rivnay 1928). The available graphic representations (Busvine 1980; Rivnay 1928) do not clearly show the distinctive characters. Rivnay (1928) provided a drawing of the ventral view of the tip of the abdomen of the female only. Busvine (1980) depicted the tip of the abdomen for both male and female but his schematic drawings are difficult to interpret. Pictures (Fig. 1c, d) show more visibly that the distal end of the last sternite is depressed with a somewhat truncated border in the male; whereas the depression is absent and the posterior border rounder in the female.

The determination of the sex of Colorado potato beetle pupae would be useful in situations where sexual dimorphism influenced larval parameters such as larval weight (Pelletier and Smilowitz 1991). This would reduce the time delay before sex determination and, more importantly, would allow sex determination of a larger proportion of beetles, otherwise reduced by mortality during the pupal stage. A method for the determination of the sex of Colorado potato beetle pupae is described for the first time.

I observed that the 7th visible sternite of males is complete and depressed in its center (Fig. 1a) and the posterior margins of the 6th visible sternite is somewhat truncated. In females, the 7th visible sternite is divided in its center by a suture that is usually dark in color (Fig. 1b). The center of the 6th visible segment extends slightly posteriorly. To validate this method, 100 fully grown larvae collected from the field were individually caged in 1 oz cups filled with soil and allowed to pupate. The sex

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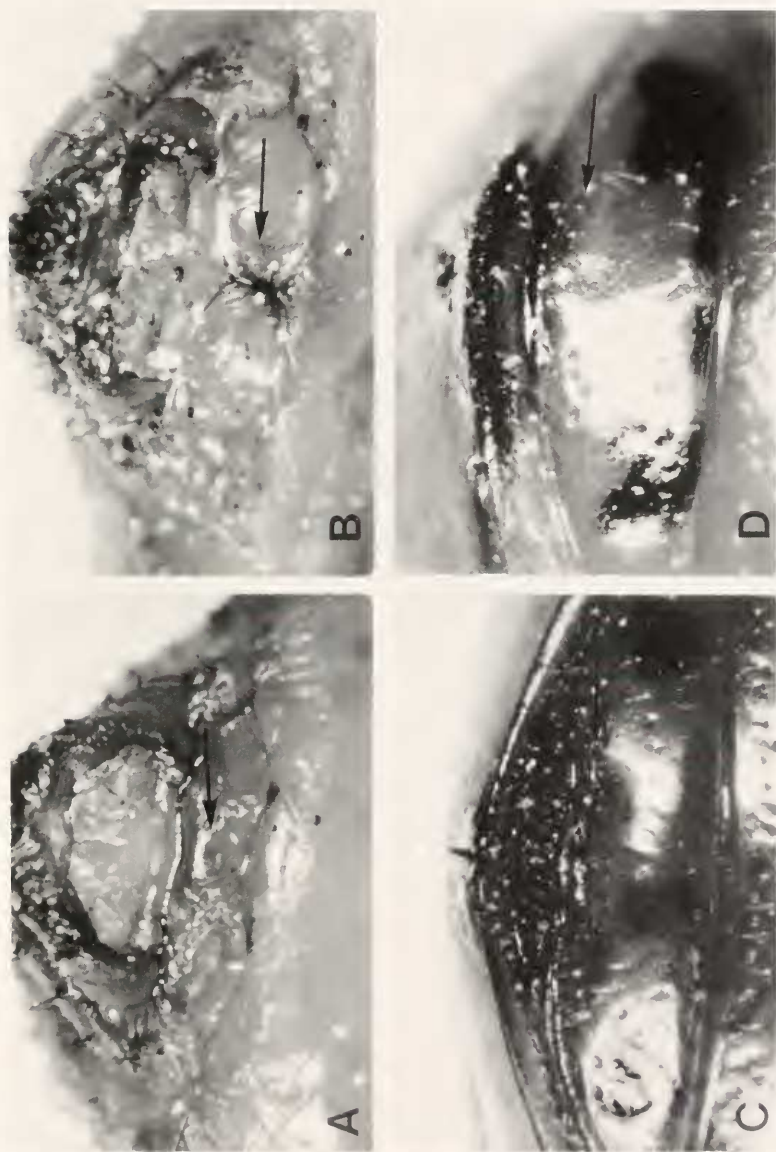


Figure 1. Ventral view of the tip of the abdomen of male (A) and female (B) pupa and male (C) and female (D) adult of the Colorado potato beetle.

was then determined using the characters described above and each pupa put back in its container. After emergence, each adult was sexed again using the descriptions reported by Ravnay (1928) and Busvine (1980). Sex determinations conducted on pupal and adult stages corresponded in all cases.

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Figure 1. Ventral view of the tip of the abdomen of male (A) and female (B) pupa and male (C) and female (D) adult of the Colorado potato beetle.